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ABSTRACT

This report is designed to assist instruction librarians working with faculty in education and related areas to teach education students the skills of searching, retrieving, and evaluating information in education and related fields. The language of the document was chosen to help librarians communicate their objectives to faculty. The document was also designed to reflect the role of the school library media specialist as a partner with teachers in curriculum development and information skills instruction. The document consists of two parts. The first part identifies the broad goals and terminal objectives arranged in the following sequence: (1) generation and communication of knowledge in education; (2) intellectual access; (3) bibliographic representation of information sources; (4) physical access and evaluation; and (5) collaborative roles of teachers and school library media specialists. A glossary and references are included in Part I. Part II contains examples of applications of some of the goals and objectives contained in Part I. These applications provide specific behavioral objectives and activities from which to plan instructional sessions for an undergraduate social studies methods course and a graduate research methods course. Use of the ERIC bibliographic database plays a prominent role in part II. (KRN)

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INFORMATION RETRIEVAL AND EVALUATION SKILLS FOR EDUCATION STUDENTS

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INFORMATION RETRIEVAL AND EVALUATION SKILLS FOR EDUCATION STUDENTS

BACKGROUND

This document is a complete rewriting of the 1981 "Bibliographic Competencies for Education Students" that was created by the Education and Behavioral Sciences Section-Bibliographic Instruction for Educators Committee (EBSS-BIE). Because of changing technologies, education reform initiatives, and new conceptual models for information skills instruction, the EBSS-BIE Committee decided that a new statement was essential. In preparation for this task, committee members conducted interviews in Spring 1988 with numerous education faculty to learn their opinions about changes needed in the competencies statements. The committee also hosted a forum at the New Orleans 1988 summer ALA conference, during which teaching faculty and a school librarian reacted to the document and provided their ideas about what information and research skills were needed by teacher education and graduate students. During the next two years committee members prepared the present document, "Information Retrieval and Evaluation Skills for Education Students," which is based on the Bibliographic Instruction Section Task Force's 1987 Model Statement of Objectives. The BIS Model Statement of Objectives has been important in establishing a new conceptual foundation for instructional objectives designed to teach information retrieval and evaluation skills in an environment of automated catalogs and databases and sophisticated manipulation of access points. Information Power (1988), prepared by the American Association of School Libraries, provided the conceptual foundation for Goal VI. This document has also benefited from the "Information Literacy for Educators" statement prepared at the University of Nebraska, Kearney (1990).

PURPOSE

The document's purpose is to assist instruction librarians working with faculty in education and related areas of study to clarify precise instructional objectives. We hope that the language is sufficiently clear to allow practicing librarians to share some or all of these goals and terminal objectives with departmental faculty. It is designed for the use of librarians as they work with faculty in teaching students the concepts of searching, retrieving, and evaluating information in education and its related fields.

We also want this document to reflect the important role of the school library media specialist as a partner with teachers in curriculum development and information skills instruction. In this way library/information literacy skills instruction contributes directly to teacher education curriculum reform initiatives which emphasize critical thinking, problem-solving skills development, and collaborative partnerships among teachers, school library media specialists and teacher education faculty. We maintain that before graduation all teacher education students must demonstrate a basic level of skills in seeking, retrieving, and evaluating information.

These goals and objectives statements are equally appropriate for the instructional needs of graduate students in education and allied areas. They can be used to design comprehensive instructional programs, individual course sessions, or any combination thereof. We encourage instruction librarians to pick and choose from the broad goals and terminal objectives that are pertinent to their local situation. From these they can then develop more specific, behavioral objectives that are tool-based and institution-based, if desired. Those provided in Part II are intended to be illustrative of two possible applications.

STRUCTURE

The document consists of two parts: Part I identifies the broad goals and terminal objectives which are organized according to the following sequence:

Generation and communication of knowledge in education –> Intellectual access –>Bibliographic representation of information sources –> Physical access and evaluation of information sources –> Collaborative roles of teachers and school library media specialists

A "Glossary" and "Reference" section conclude Part I. Part II contains two examples of applications of some goals and objectives in Part I. These applications provide specific behavioral objectives and activities from which to plan instructional sessions for an undergraduate social studies methods course and a graduate research methods course.

USER AUDIENCE

Because institutions, library settings, and individual needs vary greatly, the user audience for whom this document is intended is broadly defined. The Committee elected not to prescribe separate terminal objectives reflecting educational level (e.g., undergraduate, graduate) or educational role (e.g., practitioner, researcher) in recognition of several factors. At any educational level students possess a different knowledge base regarding the information gathering process and are in pursuit of a range of individual information needs and interests. In the same vein, the activities of practitioners and researchers are not mutually exclusive, and, in fact, the various roles of educators often intertwine. Therefore, the term "learner" is to be understood in its broadest sense as encompassing undergraduate students, graduate students, practitioners, and researchers.

Information Retrieval and Evaluation Skills for Education Students

PART I. Goals and Objectives

GENERATION AND COMMUNICATION OF INFORMATION AND KNOWLEDGE IN EDUCATION

GOAL I. The learner is aware that knowledge in education and its related disciplines is composed of a variety of types of recorded and unrecorded information sources and understands how the body of recorded sources is generated and communicated.

OBJECTIVE A. The learner understands that educators belong to a specific discipline or sub-discipline with associated professional organizations and an identifiable body of literature.

OBJECTIVE B. The learner comprehends the typical publication cycle of information sources in education and understands the differences in authority of these sources.

OBJECTIVE C. The learner realizes the effects of evolving information technologies on the generation, communication, and access of information.

INTELLECTUAL ACCESS

GOAL II. The learner knows how information sources in education and its related areas of study are intellectually accessed.

OBJECTIVE A. The learner formulates and refines a topic of interest into a question.

Sub-Objectives: 1. The learner understands when an initial topic may be too broad or too narrow and can formulate it into a researchable question by making adjustments in scope, perspective, or time frame.

2. The learner realizes when a topic/research question is discipline-specific or interdisciplinary in scope.

OBJECTIVE B. The learner develops a basic approach or strategy appropriate to the purpose, scope, time frame of the topic/research question and required end product.

OBJECTIVE C. The learner knows that there are specialized access or finding tools for education and its related disciplines and can match these tools to the types of desired information sources identified in the search strategy.

Sub-Objectives: 1. The learner recognizes that there are different access tools for the professional and research literature of education; for the type of instructional/curricular materials; for the type of media; and for particular information needs, such as statistical, biographical, legal, etc.

2. The learner recognizes that access tools vary in format and organization, and that this determines how they are used.

3. The learner realizes that access tools have different strengths and limitations and that none are comprehensive in scope.

4. The learner knows that the reference librarian is a valuable resource to suggest appropriate tools and to explain how to use them.

OBJECTIVE D. The learner understands that finding tools have access points and knows how to manipulate them to locate bibliographic citations and/or abstracts or annotations.

Sub-Objectives: 1. The learner knows that the three major access points in finding tools are: author, title, and subject.

2. The learner recognizes that some finding tools provide additional access points, such as keywords, codes, report numbers, publication types.

3. The learner understands how tools using a controlled vocabulary differ from those using natural language and knows how to translate the research question into the controlled vocabulary.

BIBLIOGRAPHIC REPRESENTATION OF INFORMATION SOURCES

GOAL III. The learner knows how information sources in education and its related disciplines are bibliographically represented and how this understanding can help determine the usefulness of the source.

OBJECTIVE A. The learner comprehends that the specific pieces of information needed to represent information sources are arranged in a particular structure called a "citation."

OBJECTIVE B. The learner knows how to interpret and apply the information in bibliographic citations.

OBJECTIVE C. The learner recognizes that citations may be useful in evaluating the potential relevance of information sources to a specific information need or question.

PHYSICAL ACCESS AND EVALUATION OF INFORMATION SOURCES

GOAL IV. The learner understands how collections of information sources are physically organized and accessed in libraries/media centers.

OBJECTIVE A. The learner understands that libraries/media centers and library systems may group information sources by subject, format, publisher, type of material, or special audience.

OBJECTIVE B. The learner understands that libraries/media centers use some type of numeric or alphanumeric system to assign a unique address to most items in the collection.

OBJECTIVE C. The learner understands that individual items within a library's/media center's collections are represented in special holdings or location files and catalogs.

OBJECTIVE D. The learner realizes that he/she is not limited to only those information sources contained in local collections.

GOAL V. The learner understands the importance of evaluating information sources

OBJECTIVE A. The learner comprehends the significance of evaluating an author's credentials and knows how to do this.

OBJECTIVE B. The learner recognizes that the purpose of the author or publisher may in part determine the usefulness of the source.

OBJECTIVE C. The learner recognizes the importance of introductory material, table of contents, appendices, summary, and/or abstract in evaluating the scope, limitations, and special features of the information source and its usefulness for the specific information need/question.

OBJECTIVE D. The learner knows the differences between scholarly and popular information sources and how to use them appropriately.

COLLABORATIVE ROLES OF TEACHERS AND LIBRARY MEDIA SPECIALISTS

GOAL VI. The learner recognizes that the school library media specialist is a partner who actively collaborates in teaching information seeking and analysis skills to K-12 students and in curriculum development and planning. (For a complete treatment of collaborative roles, see the guidelines in Information Power 1988.)

OBJECTIVE A. The learner recognizes his/her responsibility as an educator to provide multiple opportunities for students to develop and practice a variety of basic information seeking and analysis skills in the context of classroom assignments.

OBJECTIVE B. The learner demonstrates the ability to work in collaboration with the library media specialist to reinforce the information retrieval and evaluation skills necessary to utilize the library media center.

OBJECTIVE C. The learner identifies the types of services provided by the library media specialist in support of general curriculum planning and development activities.

OBJECTIVE D. The learner identifies how the library media specialist acts as a partner with the classroom teacher in designing, implementing, and evaluating instruction.

GLOSSARY

(Definitions come from committee members and from the ACRL/BIS Model Statement of Objectives.)

Access: to identify and/or retrieve information.

Access points: specific pieces of information identified as being useful to the retrieval of information, such as subject, author, report number, etc.

Access/Finding tools: sources that lead the user to the actual information or data such as periodical indexes, online databases, catalogs, or bibliographies.

Bibliographic access: the identification of information sources by access points commonly found in the citation.

Citation: specific pieces of information arranged in a particular order which represent an information source.

Controlled vocabulary: standard terms and phrases that are used to represent subjects/topics or authorship of information sources. These terms and phrases are listed in a thesaurus or authority file which usually relates them to each other by a hierarchal or some other arrangement.

Information: ideas, facts, data, and imaginative works of the mind which have been communicated, recorded, published and/or distributed formally or informally in any format.

Information source: a single entity from which information is retrieved. Examples: a person, book, journal article, index, videotape, or test.

Intellectual access: the isolating or selecting of useful information from information sources or systems.

Learner: for the purpose of this document, learner includes anyone seeking and learning how to access and evaluate information, such as undergraduates, graduate students, practitioners and faculty researchers in education.

Location file: a source (catalog, list, file) which identifies the physical location of information sources.

Physical access: the physical retrieval of an information source.

Recorded information source: a physical entity in any medium upon which is recorded all or part of a work or multiple works. Examples: book, journal article, map, videotape, or computer database.

Unrecorded information source: oral communication, such as information obtained from interviews or from consulting an expert.

REFERENCES

ACRL/BIS Task Force on the Model Statement of Objectives. "Model Statement of Objectives for Academic Bibliographic Instruction." College and Research Libraries News, May 1987.

ACRL/EBSS Bibliographic Instruction for Educators Committee. "Bibliographic Instruction: Bibliographic Competencies for Education Students." College and Research Libraries News, July 1981.

American Association of School Librarians and Association of Educational Communication and Technology. Information Power: Guidelines for School Media Programs. Chicago, IL: ALA, 1988.

PART II. Applications

EXAMPLE ONE: Undergraduate Social Studies Methods Course

SCENARIO: Professor Linden, who is teaching a social studies methods course for undergraduate education majors, has asked the education librarian to prepare her students (primarily juniors) to find a variety of resources to develop a unit of activities on the Vietnam War for a 9th grade social studies course. They have discussed lesson planning in class. She has also asked that they learn how to use ERIC to locate information on lesson planning and teaching techniques for the social studies classroom. One 90-minute session has been scheduled. Students have had previous experience using the online catalog and Library of Congress Subject Headings. The student assignment will be done outside class.

LESSON GOAL:

The learner will effectively use library and/or media center resources in lesson planning on a given topic.

LESSON OBJECTIVES:

1. The learner will select an aspect of the Vietnam War on which to develop and formulate a search strategy for locating curriculum materials appropriate to the subject area, educational level, and specific student needs. This strategy will be judged on its appropriateness to the scope, purpose, time frame, and other aspects of the lesson topic. (supports Goal II, Objectives A and B)

2. The learner will identify at least four information retrieval tools that will be useful in locating different types and formats of resources on the Vietnam War (e.g., access tools to curriculum guides, textbooks, computer software, videotapes, and government documents). (supports Goal II, Objective C)

3. The learner will formulate a strategy for locating information in each of the tools identified, including selecting appropriate access points. The learner will combine concepts as necessary and appropriate in the tools selected. (supports Goal II, Objective D)

4. The learner will use each of the selected retrieval tools along with those listed below to locate at least one citation to background or curriculum materials on his/her topic in each tool, interpret the search results, and evaluate the appropriateness of each citation for his/her information need. If no listings are found, the learner will modify the search terms and try again. If no listings are found, he/she will document the search process by explaining search term(s) used and years of finding tool searched. (supports Goal II, Objective D; Goal III, Objectives B and C)

   a. Library's and/or media center's OPAC or card catalog
   b. Monthly Catalog of U.S. Government Publications on CD-ROM, online, or in print format
   c. Specialized library and/or media center catalogs (e.g., video/film collection catalogs, picture/slide files) (supports Goal II, Objective C; Goal IV, Objectives C and D)

5. The learner will locate the desired sources in the library and/or media center and explain how to obtain the materials not found in the collection. (supports Goal IV, Objectives A, B, C, and D)

6. The learner will use the ERIC system to find at least one article or document on unit planning and one on teaching methods or activities. These will be judged on appropriateness to the topic. (supports Goal V, Objectives C and D)

7. For each information source retrieved, the learner will analyze the implications of author/publisher/producer credentials, the purpose of the work, and the institutional affiliations of the person or group on the credibility and reliability of the information. (supports Goal V, Objectives A, B, and D)

MATERIALS:

1. Overhead projector (with LCD, if available) and pens
2. CD-ROM or online version of ERIC for demonstration and hands-on practice (or RIE and CIJE)
3. Library OPAC terminals or card catalog
4. Files/catalogs to curriculum materials collections
5. Monthly Catalog on CD-ROM, online or print
6. Transparencies (to be locally produced):
   a. Translating a question into a search strategy
   b. Indexes/catalogs appropriate for this topic
   c. Use of descriptors/subject headings in ERIC
   d. Boolean operators

LESSON PLAN:

1. Introduction: Discuss current practice in teaching about the Vietnam War in 9th grade social studies classes. Brainstorm aspects of war to be covered in the unit.

2. Objectives: Detail the objectives of this class session. Relate them to actual classroom teaching needs.

3. Recall of previous knowledge: Discuss the use of encyclopedias to get an overview of a topic. Review the use of textbooks and curriculum guides for selecting information to be taught in the classroom. Review use of OPAC to identify books on the topic.

4. Present material/guided practice with feedback: (Can be done with students working individually or in groups on a topic.)

   a. Using blank transparencies, have each student write down his/her topic or question. Selectively view these and provide feedback.

   b. Discuss translating this topic into a search strategy using Transparency 6a. and an example.

   c. Have students write down a possible search strategy on their transparencies. View selectively and provide feedback.

   d. Discuss the selection of appropriate indexes/catalogs for locating information. Compare and contrast coverage of these sources using Transparency 6b. Use example to show selection of indexes/catalogs.

   e. Have students note which sources they might use in search.

   f. Explain coverage of ERIC system. Explain different formats (RIE, CIJE, online, CD-ROM). Compare and contrast use of each. Discuss how this might be used to locate materials for lesson planning. Have students develop a search strategy and locate appropriate descriptors. Write on Transparency 6c. and share selectively with feedback.

   g. Using one example, demonstrate the use of ERIC on CD-ROM for locating teaching materials and articles on teaching methods. Explain Boolean logic (Transparency 6d. or an overhead with an LCD attachment). Have students develop ERIC search for their topics. Write on transparency and share selectively with feedback.

   h. Explain use of Monthly Catalog and its various formats. Compare type of information found in this index to ERIC and the library's or media center's catalog. Explain processing of locating the information found in this access tool.

   i. Discuss locating curriculum materials in the library and/or media center. Have students use appropriate indexes/catalogs for locating curriculum materials on chosen topic.

j. Using several examples from citations students have retrieved, analyze the citation for credibility and reliability according to author/producer credentials, the work's purpose, and the institution/company producing it. Have students analyze another citation on their own. Share selectively with feedback.

k. Discuss location of these materials in the library/media center or other collection. Discuss interlibrary loan for materials not in collection.

5. Assessing performance: Have each student develop a lesson plan on an aspect of the Vietnam War using the resources covered in class. Evaluate the resources used according to the following criteria: coverage, timeliness, variety, use of recommended sources, credibility and reliability. (This assignment will be done outside class and can be evaluated by the course instructor and/or the education librarian.)

6. Enhance transfer: Discuss how these same or similar access tools and information resources might be used in future lesson planning.

EXAMPLE TWO: Graduate Research Methods Course

SCENARIO: Professor Chapin has requested that the education librarian prepare graduate students to identify refereed journal articles which use specific research designs. The students will critique the design used in the article. She also asked that they use the electronic access tools now available in the library as part of the session. The instructional delivery format is hands-on application of demonstrated search strategies, with a time frame of 90 minutes.

LESSON GOAL:

The learner will effectively use electronic and print resources to select refereed research articles that demonstrate a given research design.

LESSON OBJECTIVES:

1. The learner will give examples of the publication cycle of educational research. (supports Goal I B)

2. The learner will use controlled vocabulary sources to obtain the descriptors needed for the search. (supports Goal II C and Goal II D)

3. The learner will formulate a search strategy which includes Boolean operators and limiters to locate relevant citations on ERIC in electronic form. (supports Goal II B)

4. The learner will determine if a journal is refereed. (supports Goal I B)

5. The learner will examine the citations located and select for retrieval those sources that are relevant and refereed. (supports Goal I B, Goal IV D, and Goal V)

6. The learner will locate the journals in the library and explain how to locate items not included in the collection. (supports Goal IV)

MATERIALS:

1. Overhead projector (with LCD, if available) and projector pens
2. Electronic ERIC stations (online or CD-ROM) for demonstration of search strategies and hands-on experience for the learners, with a Thesaurus of ERIC Descriptors at each station
3. Transparencies (to be locally produced):
    a. Information Flow in Education: From ideas to prepublication to refereed journal article to indexing/abstracting sources
    b. Example of journal description in Cabell's Directory of Publishing Opportunities in Education
    c. Flow chart of ERIC access: progress from descriptor to access
    d. Basic Boolean operators
    e. ERIC abstract with access points highlighted
    f. Blank transparency for responses to be recorded
    g. Worksheet for ERIC database search

4. Worksheets with instructions for ERIC and blanks for strategy formulation.
5. Resource listings for refereed journals: Ulrich's International Periodicals Directory, Vol. 3, and Cabell's Directory of Publishing Opportunities in Education.

LESSON PLAN:

1. Introduction: Presentation of an overview of the lesson, emphasizing the objectives as they relate to the learner's assignment.

2. Recall of previous knowledge: Discuss the characteristics of educational research literature (using transparency 3a) and elicit examples from learners that demonstrate these characteristics. Review the publication cycle (section of transparency 3a), leading into presentation on the gatekeeper function of the refereed journal.

3. Presentation of material:

   a. Present information on the refereed journal: characteristics, function, and ways of assessing if a journal is refereed. Use Cabell's Directory of Publishing.

   b. Ask questions about the kinds of research designs being searched. What terms would be used to describe the designs? Make a list of learner responses (transparency 3f).

   c. Review the access points of the ERIC system, using learners' terms for research designs as entry points to the Thesaurus of ERIC Descriptors (transparency 3c).

   d. Demonstrate the use of access points particularly relevant to the task: descriptor, use of a source limiter (journals), and publication type code for research studies with the electronic ERIC. Explain Boolean logic. Use transparencies (3c, 3d, 3e) and/or an overhead with an LCD attachment to display the search.

   e. Show an example of a retrieved citation, then an abstract. Discuss the usefulness of the abstract for the purposes of their task.

   f. Review the physical arrangement of journal, and ways to verify if the library carries the journal.

4. Guided practice/feedback:

   a. Fill out a worksheet (3g), using a projector pen, and guide the learners through the search sequence.

   b. Have the learners translate their topics to the controlled vocabulary and other access points, using the ERIC Thesaurus of Descriptors, on their worksheets. Learners then apply the strategies by conducting an ERIC search either individually or in teams. Learners should print out the abstracts.

   c. Examine the screens to see how learners are utilizing the strategies and coach individuals needing assistance. Each learner (or group of learners) should be able to go through the process of constructing a search strategy, finding citations, and examining them for relevancy.

   d. Learners determine if the journal is refereed, using the presented resources, and then physically locate the items to be used in the assignment.

5. Assess performance:

   a. Collect the worksheets to assess the effectiveness of strategy formulation.

   b. Ask Dr. Chapin to share her evaluations of the resulting papers for inclusion of refereed citations.

6. Enhance transfer: Discuss the use of the same or similar strategies with other relevant databases in the library, such as PsycLIT or Education Index.